

NMCP COVID-19 Literature Report #43: Friday, 09 October 2020

Prepared By: Tracy Shields, MSIS, AHIP <tracy.c.shields2.civ@mail.mil>

Reference Medical Librarian; Naval Medical Center Portsmouth, Library Services

Purpose: These now weekly reports, published on Fridays, are curated collections of current research, evidence reviews, and news regarding the COVID-19 pandemic. Please feel free to reach out with questions, suggestions for future topics, or any other concerns.

All reports are available online at <https://nmcp.libguides.com/covidreport>. Access is private; you will need to use the direct link or bookmark the URL, along with the case-sensitive password "NMCPfinest".

Disclaimer: I am not a medical professional. This document is current as of the date noted above. While I make every effort to find and summarize available data, things are changing rapidly, with new research and potentially conflicting literature published daily.

Statistics

Global today: 36,593,879 confirmed cases and 1,063,084 deaths in 188 countries/regions

7 days ago: 34,374,469 confirmed cases and 1,024,426 deaths in 188 countries/regions

14 days ago: 32,308,999 confirmed cases and 984,278 deaths in 188 countries/regions

United States*

top 5 states by cases (Virginia is ranked 15th)

	TOTAL US	CA	TX	FL	NY	GA
Confirmed Cases	7,611,616	845,981	807,754	726,013	470,104	327,407
Tests	112,117,737	15,623,623	6,703,106	5,489,758	11,647,440	3,083,121
Deaths	212,840	16,436	16,767	15,068	33,227	7,294

*see census.gov for current US Population data; NA: not all data available

[JHU CSSE](https://covid19.jhu.edu) as of 1100 EDT 09 October 2020

<i>Virginia</i>	Total	Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach
Cases	156,649	4,533	1,940	2,891	5,017	2,658	2,172	7,204
Hospitalized	11,447	442	74	111	381	293	127	403
Deaths	3,344	74	27	49	79	63	77	97

[VA DOH](https://vax.covid19.virginia.gov) as of 1000 EDT 09 October 2020

CDC: Airborne Transmission

On Monday, 21 September 2020, the CDC posted about airborne transmission, but hours later removed the statement, citing a website error ([WaPo](#)). (See this [archived version from 18 September 2020](#) and [21 September 2020 version](#) for comparison.)

On Tuesday, 05 October 2020, the agency updated the website to include airborne transmission ([WaPo](#)). Experts note the importance of the mention of ventilation as a factor in airborne transmission ([NPR](#)).

Specifically, the CDC website now states:

"COVID-19 can sometimes be spread by airborne transmission

- Some infections can be spread by exposure to virus in small droplets and particles that can linger in the air for minutes to hours. These viruses may be able to infect people who are further than 6 feet away from the person who is infected or after that person has left the space.
- This kind of spread is referred to as airborne transmission and is an important way that infections like tuberculosis, measles, and chicken pox are spread.
- There is evidence that under certain conditions, people with COVID-19 seem to have infected others who were more than 6 feet away. These transmissions occurred within enclosed spaces that had inadequate ventilation. Sometimes the infected person was breathing heavily, for example while singing or exercising.
 - Under these circumstances, scientists believe that the amount of infectious smaller droplet and particles produced by the people with COVID-19 became concentrated enough to spread the virus to other people. The people who were infected were in the same space during the same time or shortly after the person with COVID-19 had left.
- Available data indicate that it is much more common for the virus that causes COVID-19 to spread through close contact with a person who has COVID-19 than through airborne transmission.¹

¹Pathogens that are spread easily through airborne transmission require the use of special engineering controls to prevent infections. Control practices, including recommendations for patient placement and personal protective equipment for health care personnel in healthcare settings, can be found in Section 2 of [Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the COVID-19 Pandemic](#)." (CDC)

See also the CDC's [Scientific Brief: SARS-CoV-2 and Potential Airborne Transmission](#) and this [FAQs on aerosol transmission from experts](#) (v1.78, updated 01 October 2020; warning: links to Google Doc, may be restricted on NMCP network).

Special Reports and Events

NBER: [Face Masks, Public Policies and Slowing the Spread of COVID-19: Evidence from Canada](#) (published October 2020)

"We estimate the impact of mask mandates and other non-pharmaceutical interventions (NPI) on COVID-19 case growth in Canada, including regulations on businesses and gatherings, school closures, travel and self-isolation, and long-term care homes. We partially account for behavioral responses using Google mobility data. Our identification approach exploits variation in the timing of indoor face mask mandates staggered over two months in the 34 public health regions in Ontario, Canada's most populous province. We find that, in the first few weeks after implementation, mask mandates are associated with a reduction of 25 percent in the weekly number of new COVID-19 cases. Additional analysis with province-level data provides corroborating evidence. Counterfactual policy simulations suggest that mandating indoor masks nationwide in early July could have reduced the weekly number of new cases in Canada by 25 to 40 percent in mid-August, which translates into 700 to 1,100 fewer cases per week."

Senate CHERP: [COVID-19 & Achieving Health Equity: Congressional Action is Necessary to Address Racism and Inequality in the US Health Care System \[pdf\]](#) (published 30 September 2020)

This is a 44-page report from Senator Patty Murray (D-WA), ranking member of the Senate Committee on Health, Education, Labor and Pensions. According to a press release, the report outlines "how the American health care system has failed communities of color due to entrenched bias, discrimination, and racism—and demonstrating how those failures have contributed to disproportionate and tragically high COVID-19 death and infection rates among the Black, Latinx, and Tribal communities. In the report, Senator Murray also lays out a series of recommendations on Congressional action to address inequality and racism within the U.S. health care system."

Some of the report's 30 recommendations to Congress include:

- Protecting workers from exposure to COVID-19 on the job, by requiring that Occupational Safety and Health Administration (OSHA) issue an enforceable standard for infectious disease.
- Ensuring clinical trials are inclusive of people of color.
- Requiring anti-racist and anti-bias training for health care professionals and across health care systems.
- Provide support to Black, Latinx, Tribal, and other underrepresented people to train and pursue careers in public health and as health care providers.
- Reducing disparities in research funding rates and eliminating harassment in the sciences." ([source](#))

Behavioral and Mental Health

WHO: [The impact of COVID-19 on mental, neurological and substance use services: results of a rapid assessment](#) (published 05 October 2020)

"This report of a survey completed by 130 countries during the period June-August 2020 provides information about the extent of disruption to mental, neurological and substance use services due to COVID-19, the types of services that have been disrupted, and how countries are adapting to overcome these challenges."

MHTTC: [Webinar – Behavioral Health Care and COVID-19: The Next Phase](#) (published 21 September 2020)

Requires sharing zip code to access webinar recording.

"As COVID-19 infections reach the 6 month and 6 million infected mark in the United States, behavioral health organizations are finding themselves having to move beyond rapid infectious disease preparations and on to a "next phase" of care. This webinar explored the ongoing approaches to care and how they are evolving to best meet the needs. From telehealth to revenue cycle concerns, remote supervision to resuming in-person treatment, balancing staff resilience and second wave safety concerns, this is a transitional phase in what appears will be a lengthy pandemic experience for all of us.

Learning Objectives:

1. Describe where your organization is now in a COVID trajectory and planning process moving forward.
2. Identify best practice approaches to delivering telehealth services.
3. Identify methods to continue to maintain staff resilience as the pandemic progresses."

USUHS: [Curriculum Recommendations for Disaster Health Professionals: Disaster Behavioral Health, 2nd ed. \[pdf\]](#) (published September 2020)

"This 48-page document, updated in September 2020, was created with the intent to provide a framework upon which to build disaster behavioral health curricula, and compile and give access to up-to-date, credible resources to support such curricula. It is intended for use by those developing and delivering disaster behavioral health training, as well as community leaders, policymakers, and others seeking to better understand the behavioral health impacts of disasters on individuals and communities. It includes a table for COVID-19 Special Section: Behavioral Health Resources." ([annotation per Disaster Lit](#))

Selected Literature: Peer-Reviewed Journals

Date given is the date published or posted online; often these papers are ahead of print.

09 October 2020

MMWR: [Characteristics Associated with Adults Remembering to Wash Hands in Multiple Situations Before and During the COVID-19 Pandemic — United States, October 2019 and June 2020](#)

"Hand hygiene is one important measure to prevent the spread of COVID-19 and other pathogens.

U.S. adult Internet survey respondents in June 2020 were more likely to remember to wash their hands after experiencing respiratory symptoms, before eating in a restaurant, and before eating at home than were October 2019 survey respondents. Despite improvements, <75% of survey respondents reported remembering to wash their hands in these situations in 2020.

Public health efforts should promote frequent handwashing for all, with attention to tailoring messaging to men, young adults, and non-Hispanic White adults. Particular focus should be placed on encouraging handwashing at important times such as before eating and after experiencing respiratory symptoms."

08 October 2020

Clin Epidemiol: [Three Quarters of People with SARS-CoV-2 Infection are Asymptomatic: Analysis of English Household Survey Data](#)

"To reduce transmission of SARS-CoV-2, it is important to identify those who are infectious. However, little is known about what proportion of infectious people are asymptomatic and potential "silent" transmitters. We evaluated the value of COVID-19 symptoms as a marker for SARS-CoV-2 infection from a representative English survey.

We used data from the Office for National Statistics Coronavirus (COVID-19) Infection Survey pilot study. We estimated sensitivity, specificity, the proportion of asymptomatic cases (1 – sensitivity), positive predictive value (PPV) and negative predictive value (NPV) of COVID-19 symptoms as a marker of infection using results of the SARS-CoV-2 test as the "gold standard".

In total, there were 36,061 individuals with a SARS-CoV-2 test between 26 April and 27 June 2020. Of these, 625 (1.7%) reported symptoms on the day of the test. There were 115 (0.32%) with a positive SARS-CoV-2 test result. Of the 115, there were 27 (23.5%) who were

symptomatic and 88 (76.5%) who were asymptomatic on the day of the test. Focusing on those with specific symptoms (cough, and/or fever, and/or loss of taste/smell), there were 158 (0.43%) with such symptoms on the day of the test. Of the 115 with a positive SARS-CoV-2, there were 16 (13.9%) reporting symptoms. In contrast, 99 (86.1%) did not report specific symptoms on the day of the test. The PPV for all symptoms was 4.3% and for the specific symptoms 10.1%. The specificity and NPV of symptoms were above 98%.

COVID-19 symptoms are poor markers of SARS-CoV-2. Thus, 76.5% of this random sample who tested positive reported no symptoms, and 86.1% reported none of those specific to COVID-19. A more widespread testing programme is necessary to capture "silent" transmission and potentially prevent and reduce future outbreaks."

JAMA: [Pandemic-Driven Posttraumatic Growth for Organizations and Individuals](#)

Viewpoint paper that includes steps that can help with posttraumatic growth.

"When organizations are affected by adversity, they often use crisis management with the goal of restoring the system back to its normal level of functioning. In contrast, organizational posttraumatic growth refers to a process by which organizations are not only restored, but achieve a higher level of functioning as a result of addressing and learning from a traumatic event. Organizations or leaders should not pressure individuals to seek growth shortly after the trauma or it could inadvertently increase distress....

Posttraumatic growth does not minimize the seriousness and severity of what has happened but can emerge from adversity through active management following the important process of grieving. Can the current pandemic set the stage for beneficial personal and organizational change that creates a better future and brings renewed meaning and purpose to medicine? This is a question that only health care professionals and organizations can answer."

JAMA Ophthalmol: [Severe Acute Respiratory Syndrome Coronavirus 2 Nucleocapsid Protein in the Ocular Tissues of a Patient Previously Infected With Coronavirus Disease 2019](#)

"Does severe acute respiratory syndrome coronavirus disease 2 (SARS-CoV-2) exist in the ocular tissues of a patient with coronavirus disease 2019 (COVID-19)?

In this case study, nucleocapsid protein antigens were detected on the cells of the conjunctiva, iris, and trabecular meshwork of a patient with a COVID-19 infection, and these antigens were absent on the specimens from the control patient. In addition, angiotensin-converting enzyme 2 receptor proteins were detected in the conjunctiva cells of this patient and a control participant.

Nucleocapsid protein antigens of SARS-CoV-2 existed in the inner ocular tissues of a patient previously infected with COVID-19, which implied that SARS-CoV-2 can infect ocular tissues as well as the respiratory system."

07 October 2020

JAMA: [Analysis of Genomic Characteristics and Transmission Routes of Patients With Confirmed SARS-CoV-2 in Southern California During the Early Stage of the US COVID-19 Pandemic](#)

"During the early phase of the outbreak, what were the transmission routes and genomic characteristics of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) spread in Los Angeles, California?

This case series of 192 patients found that 82% of SARS-CoV-2 isolates from Los Angeles shared closest similarity to those originating in Europe vs those from Asia (15%). Using the variation signature of the viral genomes, 2 main clusters were identified, with the top variants sharing genomic features from European SARS-CoV-2 isolates, and several subclusters of SARS-CoV-2 outbreaks represented trackable community spread in Los Angeles.

These findings suggest that SARS-CoV-2 genomes in Los Angeles were predominantly related to the isolates originating from Europe, which are similar to viral strain distributions in New York, New York; a smaller subgroup of SARS-CoV-2 genomes shared similarities to those from originating from Asia, indicating multiple sources of viral introduction within the Los Angeles community."

Obstet Gynecol: [Clinical Presentation of Coronavirus Disease 2019 \(COVID-19\) in Pregnant and Recently Pregnant People](#)

"The PRIORITY (Pregnancy CoRonavirus Outcomes RegIsTrY) study is an ongoing nationwide prospective cohort study of people in the United States who are pregnant or up to 6 weeks postpregnancy with known or suspected severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. We analyzed the clinical presentation and disease course of COVID-19 in participants who tested positive for SARS-CoV-2 infection and reported symptoms at the time of testing.

Of 991 participants enrolled from March 22, 2020, until July 10, 2020, 736 had symptoms of COVID-19 at the time of testing; 594 tested positive for SARS-CoV-2 infection and 142 tested negative in this symptomatic group. Mean age was 31.3 years (SD 5.1), and 37% will nulliparous. Ninety-five percent were outpatients. Participants who tested positive for SARS-CoV-2-infection were a geographically diverse cohort: 34% from the Northeast, 25% from the West, 21% from the South, and 18% from the Midwest. Thirty-one percent of study participants were Latina, and 9% were Black. The average gestational age at enrollment was 24.1 weeks, and 13% of participants were enrolled after pregnancy. The most prevalent first symptoms in the cohort of patients who tested positive for SARS-CoV-2 infection were cough (20%), sore throat (16%), body aches (12%), and fever (12%). Median time to symptom resolution was 37 days (95% CI 35–39). One quarter (25%) of participants

who tested positive for SARS-CoV-2 infection had persistent symptoms 8 or more weeks after symptom onset.

COVID-19 has a prolonged and nonspecific disease course during pregnancy and in the 6 weeks after pregnancy."

06 October 2020

Anaesthesia: [A quantitative evaluation of aerosol generation during tracheal intubation and extubation](#)

"The potential aerosolised transmission of severe acute respiratory syndrome coronavirus-2 is of global concern. Airborne precaution personal protective equipment and preventative measures are universally mandated for medical procedures deemed to be aerosol-generating. The implementation of these measures is having a huge impact on healthcare provision. There is currently a lack of quantitative evidence on the number and size of airborne particles produced during aerosol-generating procedures to inform risk assessments. To address this evidence gap, we conducted real-time, high-resolution environmental monitoring in ultraclean ventilation operating theatres during tracheal intubation and extubation sequences. Continuous sampling with an optical particle sizer allowed characterisation of aerosol generation within the zone between the patient and anaesthetist. Aerosol monitoring showed a very low background particle count (0.4 particles.l-1) allowing resolution of transient increases in airborne particles associated with airway management. A positive reference control quantitated the aerosol produced in the same setting by a volitional cough (average concentration, 732 (418) particles.l-1, n = 38). Tracheal intubation including face-mask ventilation produced very low quantities of aerosolised particles (average concentration, 1.4 (1.4) particles.l-1, n = 14, p < 0.0001 vs. cough). Tracheal extubation, particularly when the patient coughed, produced a detectable aerosol (21 (18) l-1, n = 10) which was 15-fold greater than intubation (p = 0.0004) but 35-fold less than a volitional cough (p < 0.0001). The study does not support the designation of elective tracheal intubation as an aerosol-generating procedure. Extubation generates more detectable aerosol than intubation but falls below the current criterion for designation as a high risk aerosol-generating procedure. These novel findings from real-time aerosol detection in a routine healthcare setting provide a quantitative methodology for risk assessment that can be extended to other airway management techniques and clinical settings. They also indicate the need for reappraisal of what constitutes an aerosol-generating procedure and the associated precautions for routine anaesthetic airway management."

MMWR: [Trends in COVID-19 Incidence After Implementation of Mitigation Measures — Arizona, January 22–August 7, 2020](#)

"Community mitigation measures can help slow the spread of COVID-19.

The number of COVID-19 cases in Arizona stabilized and then decreased after sustained implementation and enforcement of statewide and locally enhanced mitigation measures, beginning approximately 2 weeks after implementation and enforcement of mask mandates and enhanced sanitations practices began on June 17; further decreases were observed during July 13–August 7, after statewide limitations and closures of certain services and businesses.

Widespread implementation and enforcement of sustained community mitigation measures, including mask wearing, informed by state and local officials' continual data monitoring and collaboration can help prevent transmission of SARS-CoV-2 and decrease the numbers of COVID-19 cases."

Nat Commun: [Deep phenotyping of 34,128 adult patients hospitalised with COVID-19 in an international network study](#)

"Comorbid conditions appear to be common among individuals hospitalised with coronavirus disease 2019 (COVID-19) but estimates of prevalence vary and little is known about the prior medication use of patients. Here, we describe the characteristics of adults hospitalised with COVID-19 and compare them with influenza patients. We include 34,128 (US: 8362, South Korea: 7341, Spain: 18,425) COVID-19 patients, summarising between 4811 and 11,643 unique aggregate characteristics. COVID-19 patients have been majority male in the US and Spain, but predominantly female in South Korea. Age profiles vary across data sources. Compared to 84,585 individuals hospitalised with influenza in 2014-19, COVID-19 patients have more typically been male, younger, and with fewer comorbidities and lower medication use. While protecting groups vulnerable to influenza is likely a useful starting point in the response to COVID-19, strategies will likely need to be broadened to reflect the particular characteristics of individuals being hospitalised with COVID-19."

PLoS One: [COVID-SCORE: A global survey to assess public perceptions of government responses to COVID-19 \(COVID-SCORE-10\)](#)

"Understanding public perceptions of government responses to COVID-19 may foster improved public cooperation. Trust in government and population risk of exposure may influence public perception of the response. Other population-level characteristics, such as country socio-economic development, COVID-19 morbidity and mortality, and degree of democratic government, may influence perception.

We developed a novel ten-item instrument that asks respondents to rate key aspects of their government's response to the pandemic (COVID-SCORE). We examined whether the results varied by gender, age group, education level, and monthly income. We also

examined the internal and external validity of the index using appropriate predefined variables. To test for dimensionality of the results, we used a principal component analysis (PCA) for the ten survey items. We found that Cronbach's alpha was 0.92 and that the first component of the PCA explained 60% of variance with the remaining factors having eigenvalues below 1, strongly indicating that the tool is both reliable and unidimensional. Based on responses from 13,426 people randomly selected from the general population in 19 countries, the mean national scores ranged from 35.76 (Ecuador) to 80.48 (China) out of a maximum of 100 points. Heterogeneity in responses was observed across age, gender, education and income with the greatest amount of heterogeneity observed between countries. National scores correlated with respondents' reported levels of trust in government and with country-level COVID-19 mortality rates.

The COVID-SCORE survey instrument demonstrated satisfactory validity. It may help governments more effectively engage constituents in current and future efforts to control COVID-19. Additional country-specific assessment should be undertaken to measure trends over time and the public perceptions of key aspects of government responses in other countries."

05 October 2020

AJIC: [The role of close contacts of COVID-19 patients in the SARS-CoV-2 transmission: an emphasis on the percentage of non-evaluated positivity in Mexico](#)

"To determine the percentage of positivity of close contacts of coronavirus disease 19 (COVID-19) patients to depict the importance of asymptomatic infections in the patient-to-patient transmission of COVID-19.

One hundred subjects were included. Nineteen index COVID-19 cases and eighty-one traced close contacts were screened for coronavirus 2 of severe acute respiratory syndrome (SARS-CoV-2) using real-time reverse transcription-polymerase chain reaction (RT-PCR).

Immunoglobulin M (IgM) and G (IgG) against SARS-CoV-2 were evaluated by rapid test.

Thirty-four (42%) contacts in the study were positive for SARS-CoV-2. Twenty-three (67.6%) manifested less than two respiratory symptoms, and five (14.7%) remained asymptomatic. The average of positive contacts by index COVID-19 case (R_0) was 4.3 and the mean of time of positive COVID-19 test at sampling time was 18.9 days. Positive antibody test against SARS-CoV-2 was observed in 16% of the participants.

The proportion of close contacts of COVID-19 patients infected with SARS-CoV-2 (42%) and with less than two or with no respiratory symptoms (82.4%) was high in the study population. A low proportion of COVID-19 patients had a positive test for antibodies against SARS-CoV-2. The screening for SARS-CoV-2 in close contacts of COVID-19 positive patients should be encouraged to avoid spreading the infection and the expansion of the disease."

Ann Clin Transl Neurol: [Frequent neurologic manifestations and encephalopathy-associated morbidity in Covid-19 patients](#)

"Covid-19 can involve multiple organs including the nervous system. We sought to characterize the neurologic manifestations, their risk factors, and associated outcomes in hospitalized patients with Covid-19.

We examined neurologic manifestations in 509 consecutive patients admitted with confirmed Covid-19 within a hospital network in Chicago, Illinois. We compared the severity of Covid-19 and outcomes in patients with and without neurologic manifestations. We also identified independent predictors of any neurologic manifestations, encephalopathy, and functional outcome using binary logistic regression.

Neurologic manifestations were present at Covid-19 onset in 215 (42.2%), at hospitalization in 319 (62.7%), and at any time during the disease course in 419 patients (82.3%). The most frequent neurologic manifestations were myalgias (44.8%), headaches (37.7%), encephalopathy (31.8%), dizziness (29.7%), dysgeusia (15.9%), and anosmia (11.4%). Strokes, movement disorders, motor and sensory deficits, ataxia, and seizures were uncommon (0.2 to 1.4% of patients each). Severe respiratory disease requiring mechanical ventilation occurred in 134 patients (26.3%). Independent risk factors for developing any neurologic manifestation were severe Covid-19 (OR 4.02; 95% CI 2.04–8.89; $P < 0.001$) and younger age (OR 0.982; 95% CI 0.968–0.996; $P = 0.014$). Of all patients, 362 (71.1%) had a favorable functional outcome at discharge (modified Rankin Scale 0–2). However, encephalopathy was independently associated with worse functional outcome (OR 0.22; 95% CI 0.11–0.42; $P < 0.001$) and higher mortality within 30 days of hospitalization (35 [21.7%] vs. 11 [3.2%] patients; $P < 0.001$).

Neurologic manifestations occur in most hospitalized Covid-19 patients. Encephalopathy was associated with increased morbidity and mortality, independent of respiratory disease severity."

BMJ Glob Health: [Symptoms of a broken system: the gender gaps in COVID-19 decision-making](#)

"Despite numerous global and national commitments to gender-inclusive global health governance, COVID-19 followed the usual modus operandi –excluding women's voices. A mere 3.5% of 115 identified COVID-19 decision-making and expert task forces have gender parity in their membership while 85.2% are majority men.

With 87 countries included in this analysis, information regarding task force composition and membership criteria was not easily publicly accessible for the majority of United Nations Member States, impeding the ability to hold countries accountable to previously made commitments.

Lack of representation is one symptom of a broken system where governance is not inclusive of gender, geography, sexual orientation, race, socio-economic status or

disciplines within and beyond health – ultimately excluding those who offer unique perspectives and expertise.

Functional health systems require radical and systemic change that ensures gender-responsive and intersectional practices are the norm – rather than the exception.

Open, inclusive and transparent communication and decision-making must be prioritised over closed-door or traditional forms of governance.

Data collection and governance policies must include sex and gender data, and strive for an intersectionality approach that includes going beyond binary representation in order to produce results that are inclusive of the full gender spectrum."

Clin Microbiol Infect: [Follow-up of adults with non-critical COVID-19 two months after symptoms' onset](#)

"To describe the clinical evolution and predictors of symptom persistence during 2-month follow-up in adults with non-critical COVID-19.

Descriptive clinical follow-up (days 7, 30 [D30] and 60 [D60]) of 150 patients with non-critical COVID-19 confirmed by RT-PCR at Tours University Hospital from March 17 to June 3, 2020, including demographic, clinical and laboratory data collected from the electronic medical records and by phone call. Persisting symptoms were defined by the presence at D30 or D60 of at least one of the following: weight loss $\geq 5\%$, severe dyspnea or asthenia, chest pain, palpitations, anosmia/ageusia, headache, cutaneous signs, arthralgia, myalgia, digestive disorders, fever or sick leave.

At D30, 68% (n=103/150) of patients presented at least one symptom and 66% (n=86/130) at D60, mainly anosmia/ageusia: (59% (n=89/150) at symptom onset, 28% (n=40/150) at D30 and 23% (n=29/130) at D60). Dyspnea concerned 36.7% (n=55/150) patients at D30 and 30% (n=39/130) at D60. Half of the patients (n=74/150) at D30 and 40% (n=52/130) at D60 reported asthenia. Persistent symptoms at D60 were significantly associated with age 40 to 60 years old, hospital admission and abnormal auscultation at symptom onset. At D30, severe COVID-19 and/or dyspnea at symptom onset were additional factors associated with persistent symptoms.

Up to 2 months after symptom onset, two thirds of adults with non-critical COVID-19 had complaints, mainly anosmia/ageusia, dyspnea or asthenia. A prolonged medical follow-up of patients with COVID-19 seems essential, whatever the initial clinical presentation."

JAMA: [Long-term Health Consequences of COVID-19](#)

"With more than 30 million documented infections and 1 million deaths worldwide, the coronavirus disease 2019 (COVID-19) pandemic continues unabated. The clinical spectrum of severe acute respiratory syndrome coronavirus (SARS-CoV) 2 infection ranges from asymptomatic infection to life-threatening and fatal disease. Current estimates are that

approximately 20 million people globally have “recovered”; however, clinicians are observing and reading reports of patients with persistent severe symptoms and even substantial end-organ dysfunction after SARS-CoV-2 infection. Because COVID-19 is a new disease, much about the clinical course remains uncertain—in particular, the possible long-term health consequences, if any....

Granted that no long-term data of substantial numbers of patients with various presenting symptoms exist and with comparison groups, and that it is still early in the COVID-19 pandemic, it is possible that large numbers of patients will experience long-term sequelae. Outpatient post-COVID-19 clinics are opening in many localities where large outbreaks have occurred, and the term “long-haulers” has been suggested to refer to these patients. It is imperative that the care of this vulnerable patient population take a multidisciplinary approach, with a thoughtfully integrated research agenda, to avoid health system fragmentation and to allow the comprehensive study of long-term health consequences of COVID-19 on multiple organ systems and overall health and well-being."

See also:

BMJ: [Long covid: How to define it and how to manage it](#) (webinar; 07 September 2020)

BMJ: [Long covid: doctors call for research and surveillance to capture disease](#) (15 September 2020)

Nature: [Long COVID: let patients help define long-lasting COVID symptoms](#) (07 October 2020)

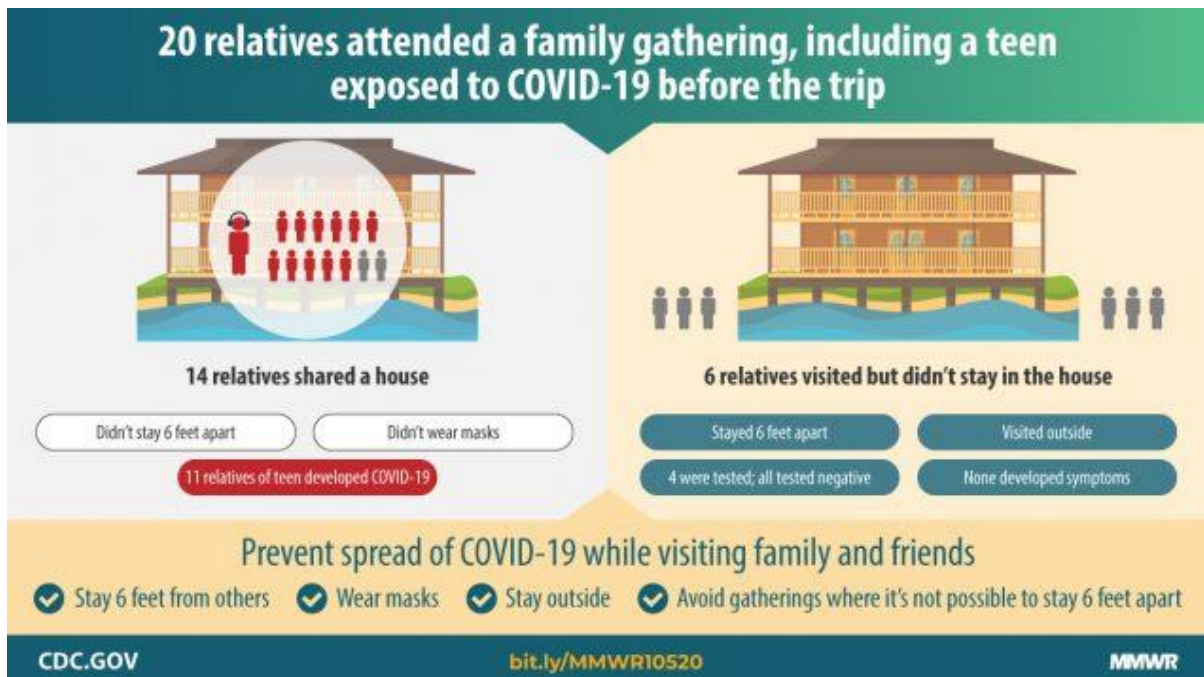
Lancet: [Lopinavir–ritonavir in patients admitted to hospital with COVID-19 \(RECOVERY\): a randomised, controlled, open-label, platform trial](#)

"To our knowledge, the randomised evaluation of COVID-19 therapy (RECOVERY) trial is the first large-scale randomised clinical trial to report the effects of lopinavir–ritonavir in patients admitted to hospital with COVID-19. We found no significant difference between the lopinavir–ritonavir group and the usual care group in terms of 28-day mortality, the probability of discharge alive within 28 days, or, among patients who were not receiving invasive mechanical ventilation at randomisation, the probability of progressing to the composite outcome of invasive mechanical ventilation or death. We saw no evidence of benefit of lopinavir–ritonavir in any patient subgroup.

Our finding of no clinical benefit from lopinavir–ritonavir treatment compared with standard care supports earlier findings from a smaller clinical trial. Many clinical care guidelines have recommended lopinavir–ritonavir for treatment of patients admitted to hospital with COVID-19. These guidelines should be updated."

MMWR: [Adolescent with COVID-19 as the Source of an Outbreak at a 3-Week Family Gathering — Four States, June–July 2020](#)

"There is increasing evidence that children and adolescents can efficiently transmit SARS-CoV-2, the virus that causes coronavirus disease 2019 (COVID-19) (1–3). During July–August 2020, four state health departments and CDC investigated a COVID-19 outbreak that occurred during a 3-week family gathering of five households in which an adolescent aged 13 years was the index and suspected primary patient; 11 subsequent cases occurred."



Pediatr Pulmonol: [Is Vitamin D Deficiency a Risk Factor for Covid 19 in Children?](#)

"This study includes 40 patients who were diagnosed to have COVID-19 and hospitalized with the real-time reverse transcription polymerase chain reaction (RT-PCR) method, 45 healthy matched control subjects with normal vitamin D levels. The age of admission, clinical and laboratory data, and 25-hydroxycholecalciferol (25-OHD) levels were recorded. Those with vitamin D levels which are below 20 ng/ml were determined as Group 1 and those with ≥ 20 ng/ml as Group 2.

Patients with COVID-19 had significantly lower vitamin D levels $13.14 \mu\text{g/L}$ (4.19-69.28) than did the controls $34.81(3.8-77.42) \mu\text{g/L}$ ($p < 0.001$). Patients with COVID-19 also had significantly lower serum phosphorus (4.09 ± 0.73 vs. 5.06 ± 0.93 vs (U/L) ($p < 0.001$) values compared with the controls. The symptom of fever was significantly higher in COVID-19 patients who had deficient and insufficient vitamin D levels than in patients who had sufficient vitamin D levels ($p = 0.038$). There was a negative correlation found between fever symptom and vitamin D level ($r = -0.358$, $p = 0.023$).

This is the first to evaluate vitamin D levels and its relationship with clinical findings in pediatric patients with COVID-19. Our results suggest that vitamin D values may be associated with the occurrence and management of the COVID-19 disease by modulating the immunological mechanism to the virus in the pediatric population."

Sci Rep: [SARS-CoV-2 spike protein predicted to form complexes with host receptor protein orthologues from a broad range of mammals](#)

"SARS-CoV-2 has a zoonotic origin and was transmitted to humans via an undetermined intermediate host, leading to infections in humans and other mammals. To enter host cells, the viral spike protein (S-protein) binds to its receptor, ACE2, and is then processed by TMPRSS2. Whilst receptor binding contributes to the viral host range, S-protein:ACE2 complexes from other animals have not been investigated widely. To predict infection risks, we modelled S-protein:ACE2 complexes from 215 vertebrate species, calculated changes in the energy of the complex caused by mutations in each species, relative to human ACE2, and correlated these changes with COVID-19 infection data. We also analysed structural interactions to better understand the key residues contributing to affinity. We predict that mutations are more detrimental in ACE2 than TMPRSS2. Finally, we demonstrate phylogenetically that human SARS-CoV-2 strains have been isolated in animals. Our results suggest that SARS-CoV-2 can infect a broad range of mammals, but few fish, birds or reptiles. Susceptible animals could serve as reservoirs of the virus, necessitating careful ongoing animal management and surveillance."

03 October 2020

Clin Infect Dis: [Survival of SARS-CoV-2 and influenza virus on the human skin: Importance of hand hygiene in COVID-19](#)

"The stability of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on human skin remains unknown, considering the hazards of viral exposure to humans. We generated a model that allows the safe reproduction of clinical studies on the application of pathogens to human skin and elucidated the stability of SARS-CoV-2 on the human skin.

We evaluated the stability of SARS-CoV-2 and influenza A virus (IAV), mixed with culture medium or upper respiratory mucus, on human skin surfaces and the dermal disinfection effectiveness of 80% (w/w) ethanol against SARS-CoV-2 and IAV.

SARS-CoV-2 and IAV were inactivated more rapidly on skin surfaces than on other surfaces (stainless steel/glass/plastic); the survival time was significantly longer for SARS-CoV-2 than for IAV [9.04 h (95% confidence interval: 7.96–10.2 h) vs. 1.82 h (1.65–2.00 h)]. IAV on other surfaces was inactivated faster in mucus versus medium conditions, while SARS-CoV-2 showed similar stability in the mucus and medium; the survival time was significantly longer for SARS-CoV-2 than for IAV [11.09 h (10.22–12.00 h) vs. 1.69 h (1.57–1.81 h)]. Moreover,

both SARS-CoV-2 and IAV in the mucus/medium on human skin were completely inactivated within 15 s by ethanol treatment.

The 9-h survival of SARS-CoV-2 on human skin may increase the risk of contact transmission in comparison with IAV, thus accelerating the pandemic. Proper hand hygiene is important to prevent the spread of SARS-CoV-2 infections."

02 October 2020

MMWR: [Case Series of Multisystem Inflammatory Syndrome in Adults Associated with SARS-CoV-2 Infection — United Kingdom and United States, March–August 2020](#)

"Multisystem inflammatory syndrome in children (MIS-C) is a rare but severe complication of SARS-CoV-2 infection in children and adolescents. Since June 2020, several case reports and series have been published reporting a similar multisystem inflammatory syndrome in adults (MIS-A).

Cases reported to CDC and published case reports and series identify MIS-A in adults, who usually require intensive care and can have fatal outcomes. Antibody testing was required to identify SARS-CoV-2 infection in approximately one third of 27 cases.

Clinical suspicion and indicated SARS-CoV-2 testing, including antibody testing, might be needed to recognize and treat adults with MIS-A. Further research is needed to understand the pathogenesis and long-term effects of this condition. Ultimately, the recognition of MIS-A reinforces the need for prevention efforts to limit spread of SARS-CoV-2."

ICYMI

Xenotransplantation: [Further information on possible animal sources for human COVID-19](#)

"In summary, since SARS-CoV-2 emerged in the human population toward the end of 2019, it has been spreading at a high rate and infection rates in humans continue to increase. There is confirmed evidence that SARS-CoV-2 from COVID-19-infected humans can spillover to certain animal species within the families Mustelidae, Felinae, and Caninae. Commonly, infections in animal hosts are subclinical but occasionally clinical signs can be observed. Moreover, cats, dogs, ferrets, Egyptian fruit bats, golden Syrian hamsters, and macaques have been experimentally infected and some of these species are now used for SARS-CoV-2 research. There is however surprisingly little information on other species which are predicted to potentially serve as reservoirs for humans. Of note, the sample size of species that have been tested was low. This lack of knowledge requires attention, in cases of xenotransplantation most organs or products of animal origin should be tested for the presence of SARS-CoV-2 prior to their use in patients."

Selected Literature: Preprints

Preprints are found on preprint servers such as [arXiv](#), [bioRxiv](#), and [medRxiv](#); they are commonly used for biomedical research. Preprints may later be published in peer-reviewed journals.

Per medRxiv: "Preprints are preliminary reports of work that have not been certified by peer review. They should not be relied on to guide clinical practice or health-related behavior and should not be reported in news media as established information."

medRxiv: [Clinical, laboratory, and temporal predictors of neutralizing antibodies to SARS-CoV-2 after COVID-19](#) (08 October 2020)

"Background: SARS-CoV-2-specific antibodies may protect from reinfection and disease, providing the rationale for administration of plasma containing SARS-CoV-2 neutralizing antibodies (nAb) as a treatment for COVID-19. The clinical factors and laboratory assays to streamline plasma donor selection, and the durability of nAb responses, are incompletely understood.

Methods: Adults with virologically-documented SARS-CoV-2 infection in a convalescent plasma donor screening program were tested for serum IgG to SARS-CoV-2 spike protein S1 domain, nucleoprotein (NP), and for nAb.

Results: Amongst 250 consecutive persons studied a median of 67 days since symptom onset, 243/250 (97%) were seropositive on one or more assays. Sixty percent of donors had nAb titers $\geq 1:80$. Correlates of higher nAb titer included older age (adjusted OR [AOR] 1.03/year of age, 95% CI 1.00-1.06), male sex (AOR 2.08, 95% CI 1.13-3.82), fever during acute illness (AOR 2.73, 95% CI 1.25-5.97), and disease severity represented by hospitalization (AOR 6.59, 95% CI 1.32-32.96). Receiver operating characteristic (ROC) analyses of anti-S1 and anti-NP antibody results yielded cutoffs that corresponded well with nAb titers, with the anti-S1 assay being slightly more predictive. NAb titers declined in 37 of 41 paired specimens collected a median of 98 days (range, 77-120) apart ($P < 0.001$). Seven individuals (2.8%) were persistently seronegative and lacked T cell responses.

Conclusions: Nab titers correlated with COVID-19 severity, age, and sex. Standard commercially available SARS-CoV-2 IgG results can serve as useful surrogates for nAb testing. Functional nAb levels were found to decline and a small proportion of COVID-19 survivors lack adaptive immune responses."

medRxiv: [Mask mandates can limit COVID spread: Quantitative assessment of month-over-month effectiveness of governmental policies in reducing the number of new COVID-19 cases in 37 US States and the District of Columbia](#) (08 October 2020)

"Introduction: SARS-CoV-2 is the beta-coronavirus responsible for COVID-19. Facemask use has been qualitatively associated with reduced COVID-19 cases, but no study has

quantitatively assessed the impact of government mask mandates (MM) on new COVID-19 cases across multiple US States.

Data and Methods: We utilized a non-parametric machine-learning algorithm to test the a priori hypothesis that MM were associated with reductions in new COVID-19 cases. Publicly available data were used to analyze new COVID-19 cases from 37 States and the District of Columbia (i.e., "38 States"). We conducted confirmatory All-States and State-Wise analyses, validity analyses [e.g., leave-one-out (LOO) and bootstrap resampling], and covariate analyses.

Results: No statistically significant difference in the daily number of new COVID-19 infections was discernible in the All-States analysis. In State-Wise LOO validity analysis, 11 States exhibited reductions in new COVID-19 and the reductions in four of these States (AK, MA, MN, VA) were significant in bootstrap resampling. Only the Social Capital Index predicted MM success (training $p < 0.028$ and LOO $p < 0.013$).

Conclusion: Results obtained when studying the impact of MM on COVID-19 cases varies as a function of the heterogeneity of the sample being considered, providing clear evidence of Simpson's Paradox and thus of confounded findings. As such, studies of MM effectiveness should be conducted on disaggregated data. Since transmissions occur at the individual rather than at the collective level, additional work is needed to identify optimal social, psychological, environmental, and educational factors which will reduce the spread of SARS-CoV-2 and facilitate MM effectiveness across diverse settings."

medRxiv: [Epidemiological Risk Factors of SARS-Cov-2 Infections](#) (posted 06 October 2020)

"Since the first governmental recognitions of the pandemic characteristic of the SARS-Cov-2 infections, public health agencies have warned about the dangers of the virus to persons with a variety of underlying physical conditions, many of which are more commonly found in persons older than 50 years old. To investigate the statistical, rather than physiological basis of such warnings, this study examines correlations on a nation-by-nation basis between the statistical data concerning covid-19 fatalities among the populations of the ninety-nine countries with the greatest number of SARS-Cov-2 infections plus the statistics of potential co-morbidities that may influence the severity of the infections. It examines reasons that may underlie of the degree to which advanced age increases the risk of mortality of an infection and contrasts the risk factors of SARS-Cov-2 infections with those of influenzas and their associated pneumonias."

medRxiv: [Reinfection with SARS-CoV-2 and failure of humoral immunity: a case report](#) (posted 25 September 2020)

"Recovery from COVID-19 is associated with production of anti-SARS-CoV-2 antibodies, but it is uncertain whether these confer immunity. We describe viral RNA shedding duration in hospitalized patients and identify patients with recurrent shedding. We sequenced viruses

from two distinct episodes of symptomatic COVID-19 separated by 144 days in a single patient, to conclusively describe reinfection with a new strain harboring the spike variant D614G. With antibody and B cell analytics, we show correlates of adaptive immunity, including a differential response to D614G. Finally, we discuss implications for vaccine programs and begin to define benchmarks for protection against reinfection from SARS-CoV-2."

Calls, Webinars, and Other Events

WHAT: [Empathy and Emotions: Navigating Digital Wellbeing and Grief during COVID-19](#)

"A conversation about the importance of empathy and community-based solutions to mental health challenges, including grief and digital wellbeing in the context of COVID-19 and beyond." Sponsored by the World Health Organization.

WHEN: Monday, 12 October 2020, 1000–1130 ET

DETAILS: "Equitable access to mental health care and support remain a challenge for many people around the world. The COVID-19 pandemic has amplified and exacerbated existing inequities and injustices, especially amongst marginalized individuals and communities. People are experiencing loss in various ways; losing loved ones, a sense of normalcy, jobs, opportunities, and abilities. While technology is being used to support online education and as a way for individuals to connect with family, friends, and colleagues in light of social distancing, it is also negatively impacting people's mental, physical, and social health and wellbeing. In the face of these challenges, mental health champions, advocates and leaders across generations, cultures, and disciplines are developing and implementing innovative initiatives to support their communities."

REGISTER: https://who-e.zoom.us/webinar/register/WN_Oa6un3gpTr2Ej9te5VXeQQ

News in Brief

"COVID-19 Is now the third leading cause of death in the US" ([SciAm](#)).

After the Coast Guard's second in command tested positive for COVID-19, all but one of the service chiefs have isolated themselves because of exposure ([Defense One](#)).

After getting caught taking photos in a closed park in Hawaii, the US Surgeon General was cited for breaking pandemic restrictions ([WaPo](#)).

Editors at the *New England Journal of Medicine* published a scathing editorial criticizing the government's leadership and response (or lack thereof) to the pandemic ([NEJM](#)).

Transmission and Exposure

A senior World Health Organization official suggests that about 10% of the global population may have been infected by the coronavirus ([NPR](#)).

Now that there's greater focus on aerosolized transmission of the virus, there's more discussion about ventilation (see this [Atlantic article from 30 July 2020](#), noted in a previous report, for a good breakdown on the issue). When sharing space with a potential superspreader, where you sit in a room matters ([Conversation](#)).

There is another report suggesting reinfection of COVID-19 after recovering from confirmed positive coronavirus infection previously ([CNN](#)).

Should we be using box fans instead of plexiglass to mitigate aerosolized spread of the coronavirus? ([NPR](#))

Long read: "Face masks: what the data say" ([Nature](#)).

Testing, Tracking, and Treatments

Scientists in India have developed a cheap, paper-based test for coronavirus that could give results in under an hour ([BBC](#)).

A "badly thought-out use" of Excel spreadsheets resulted in the data loss of almost 16,000 cases of COVID-19 in England ([BBC](#)).

Eli Lilly says its monoclonal antibody, LY-CoV555, is effective in reducing viral levels in patients with COVID-19 ([STAT](#)).

A pilot program is looking at ways to share effective approaches for rapid, point-of-care antigen tests for COVID-19 screening ([HPN](#)).

Vaccines

Only higher-risk groups will get a COVID-19 vaccine in Britain, according to the chair of the vaccine task force ([Reuters](#)).

The FDA has revised guidance for emergency use authorization (EUA) of COVID-19 vaccines ([FDA](#)).

Relatedly, the head of OWS "tapped ever so softly on the brakes", slowing the race for COVID-19 vaccine ([STAT](#)).

European Union regulators are evaluating the Pfizer-BioNTech COVID-19 vaccine in real time to streamline the evaluation process for approval ([Reuters](#)).

Ripple Effects

'Covid is all about privilege': Trump's treatment underscores vast inequalities in access to care ([STAT](#)).

Millions face food insecurity as pandemic relief is on hold ([NPR](#); [listen to a special report](#)).

After case reports have hinted at a connection, researchers around the world are pooling data to determine if coronavirus infection can trigger diabetes ([Wired](#)).

Failures in the medical supply chain led to more COVID-19 deaths ([AP](#)).

The DOD is taking steps to strengthen supply chains after the pandemic uncovered areas of risk ([DOD](#)).

Other Outbreaks

A woman in Fairbanks, Alaska is the second known case of a novel orthopoxvirus 'Alaskapox' infection ([ONT](#)).

The *Salmonella* outbreak linked to onions appears to be over ([CDC](#)).

Pet hedgehogs are again the focus of an outbreak of *Salmonella* Typhimurium infections, including one in Virginia ([CDC](#)).

USAID launched 'Strategies to Prevent Spillover' (STOP Spillover) – "a five-year, \$100 million project to anticipate and address threats posed by the emerging zoonotic diseases that pose the greatest risk of jumping from animals to humans" ([USAID](#)).

And Now for Something Completely Different

Fat bear week update: "The votes are in! You've crowned the Earl of Avoirdupois, bear 747, the 2020 Fat Bear Week Champion. 747's voluminous visage eclipsed 32's chunky chassis. No longer the runner-up, 747 fulfills the fate of the fat and fabulous as he heads off to hibernation." ([Explore](#))

I mean, just look at that chonky boy —>

Estimated to weight more than 1,400 pounds (!!!) last fall, he looks to be at least that big this year. He is (dare I say) as barrel round as a 747.



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